Sexually Transmitted Infections

Section 1

ABOUT THE INFECTIONS

Gonorrhea

A. Etiologic Agent

Neisseria gonorrhoeae are bacteria that appear as gram-negative diplococci on microscopic Gram-stained smear.

B. Clinical Description

Many infections occur without symptoms. Most males with urethral infection have symptoms of purulent or mucopurulent urethral discharge. Men may also have epididymitis due to *N. gonorrhoeae*. Most infections in women are asymptomatic. Symptoms in women can include abdominal pain, and mucopurulent or purulent cervical discharge. Women may also get urethritis. *N. gonorrhoeae* can cause pelvic inflammatory disease. Disseminated (bloodstream) infection can occur with rash, and joint and tendon inflammation. Infections of the throat and the rectum can also occur and are often asymptomatic.

C. Vectors and Reservoirs

Humans are the only known natural hosts and reservoirs of infection.

D. Modes of Transmission

Gonorrhea is transmitted through oral, vaginal, or anal sex. Gonorrhea can also be transmitted at birth through contact with an infected birth canal.

E. Incubation Period

The incubation period for gonorrhea is usually 2-7 days for symptomatic disease.

F. Period of Communicability or Infectious Period

All sexual contacts within 60 days of the onset of symptoms or diagnosis of gonorrhea should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

G. Epidemiology

Gonorrhea is the second most commonly reported notifiable disease in the U.S.; over 300,000 cases are reported annually. The number of reported cases underestimates true incidence.

H. Treatment

Ceftriaxone 250 mg IM x 1 dose PLUS EITHER Azithromycin 1 gram PO x 1 dose (preferred)
OR Doxycycline 100 mg PO twice daily for 7 days is the recommended treatment in Massachusetts. For additional treatment options, see
http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html

Genital Chlamydia Trachomatic Infection

A. Etiologic Agent

Chlamydia trachomatis is an intracellular bacterial pathogen.

B. Clinical Description

Most frequently, no noticeable symptoms are present. Males with urethral infections may have a mucoid or clear urethral discharge and dysuria. Symptomatic females can have mucopurulent endocervical discharge, dysuria, and pain in the lower abdomen. Women may have pelvic inflammatory disease and inflammation of the surface of the liver due to *C. trachomatis* (Fitzhugh-Curtis syndrome). Men may develop epididymitis. Infection of the rectum may also occur and is often asymptomatic.

C. Vectors and Reservoirs

Humans are the only known natural hosts and reservoirs of infection.

D. Modes of Transmission

Chlamydia infection is transmitted through oral, vaginal, or anal sex. It can also be transmitted at birth through contact with an infected birth canal.

E. Incubation Period

The mean incubation period of chlamydia is usually 21 days for symptomatic disease.

F. Period of Communicability or Infectious Period

All sexual contacts within 60 days of the onset of symptoms or diagnosis of chlamydia should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

G. Epidemiology

Chlamydial infection is the most frequently reported notifiable sexually transmitted infection (STI) in the U.S.; over 1.4 million cases are reported annually. Many infections go undiagnosed and unreported. Reported rates are 2.5 times higher in females than in males.

H. Treatment

The following treatments are recommended in Massachusetts:

1. Azithromycin 1 gram PO x 1 dose;
   or
2. Doxycycline 100 mg PO twice daily for 7 days.

For additional treatment options, see
http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html

Syphilis

A. Etiologic Agent

Treponema pallidum are corkscrew-shaped bacteria (spirochetes).

B. Clinical Description

In primary syphilis, the first stage of syphilis, an ulcerous lesion or "chancre" develops at the site of inoculation. This is a painless ulcer, often on the genitalia, but depending on contact, this lesion may occur on any part of the body, including mucous membranes. Regional lymphadenopathy may also develop. In the secondary stage, disseminated skin rash and lesions of the mucous membranes are most common. Other manifestations include malaise, lymphadenopathy, mucous patches (elevated patches in the mouth or anus), condylomata lata (syphilitic wart-like lesions generally in the perineal and perirectal areas) and alopecia (patchy hair loss). Late stage syphilis may involve any organ of the body, but involvement of the nervous system, eyes, heart, and arteries are particularly common. At any stage of syphilis, latent infection may occur (latent infection is ongoing infection without signs or symptoms). Early latent syphilis is an asymptomatic period occurring in the first year after infection, with late latent syphilis being asymptomatic infection of longer duration. Persons with primary, secondary, and early latent infection are considered to be infectious.

C. Vectors and Reservoirs

Humans are the only known natural hosts.

D. Modes of Transmission

Syphilis is transmitted through oral, vaginal, or anal sex. Transmission may also occur across the placenta prior to birth. Transmission rarely occurs by blood transfusion.

E. Incubation Period

The incubation period of syphilis is 10–90 days—median 21 days for primary syphilis.

F. Period of Communicability or Infectious Period

Patients are most infectious during primary and secondary syphilis when lesions or rash are present. This is also consistent with the period of early latent syphilis. However, it may be possible to transmit the infection up to four years after initial infection.

G. Epidemiology

The rate of reported primary and secondary (P&S) syphilis in the U.S. decreased during the 1990s, and in 2000, was the lowest since reporting began in 1941. However, the number of cases of P&S syphilis increased during 2000-2002 and has remained elevated. This increase in incidence is due, in part, to an increased number of cases in men who have sex with men.

H. Treatment

Penicillin is the treatment of choice for all stages of syphilis and is the only recommended treatment for congenital syphilis, syphilis in pregnant women, and syphilis in persons with HIV infection. Benzathine penicillin G 2.4 million units, IM x 1 dose is the recommended treatment for primary, secondary, and early latent syphilis in Massachusetts. For treatment recommendations for other presentations of syphilis and in the penicillin allergic patient, see
http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html

Pelvic Inflammatory Disease (PID)

PID is an inflammation of the upper genital tract (uterus, tubes, and adjacent pelvic structures). It is characterized by lower abdominal/pelvic pain and tenderness, fever, and nausea and vomiting, with or without vaginal discharge. PID can be caused by *C. trachomatis* or *N. gonorrhoeae*, as well as by a variety of other infectious agents. The cause of PID cannot be determined solely on clinical grounds. Treatment is with a variety of antibiotic combinations. For more information, see *http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html*

Chancroid, Lympogranuloma Venereum (LGV), and Granuloma Inguinale (Donovaniasis)

Chancroid (caused by *Haemophilus ducreyi*), lympogranuloma venereum (LGV, caused by *C. trachomatis*, L1, L2, and L3), and granuloma inguinale (caused by *Klebsiella granulomatis)* are uncommon in Massachusetts. Concerns and questions about these diseases can be referred to the DSTDP at (617) 983-6940. *See* *http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html* for treatment options.

Section 2

REPORTING CRITERIA AND LABORATORY TESTING

A. What to Report to the Massachusetts Department of Public Health (MDPH)

The following nine diseases and conditions (infectious agents) are reportable directly to MDPH:

- Chlamydia infection (*Chlamydia trachomatis*)
- Gonorrhea (*Neisseria gonorrhoeae*)
- Syphilis (*Treponema pallidum*)
- Pelvic inflammatory disease (irrespective of etiology)
- Chancroid (*Haemophilus ducreyi*)
- Lympogranuloma venereum (LGV, *Chlamydia trachomatis* L1, L2 and L3)
- Granuloma inguinale (*Klebsiella granulomatis*)
- Neonatal herpes simplex virus infection (onset within 60 days after birth)
- Opthalmia neonatorum (*Neisseria gonorrhoeae, Chlamydia trachomatis*)

B. Laboratory Testing Services Available

Testing on some STIs is available at the MDPH William A. Hinton State Laboratory Institute. Please refer to the MDPH State Laboratory Manual of Tests and Services for information on testing availability http://www.mass.gov/eohhs/docs/dph/laboratory-sciences/sli-manual-tests-services.pdf

Section 3

REPORTING RESPONSIBILITIES AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To identify all cases of sexually transmitted infections (STI)
- To identify contacts of cases to prevent further spread

B. Laboratory and Health Care Provider Reporting Requirements

Health care providers and laboratories are required to report STIs directly to the Massachusetts Department of Public Health (MDPH), specifically to the MDPH Bureau of Infectious Disease, Division of STD Prevention (DSTDP). The foundation of STI prevention and control is monitoring of disease trends. Cases of STIs, as determined by clinical diagnosis and/or laboratory evidence of infection, are reportable directly to the DSTDP within 24 hours of diagnosis (see regulations under *105 CMR 300.180* and *105 CMR 300.170*).

Health care providers must complete and send in a MDPH Case Report Form to the DSTDP or provide an equivalent report. Case Report Forms can be obtained by contacting the DSTDP at (617) 983-6940. Laboratories must report significant findings by either mail or fax, or electronically.

C. Local Board of Health (LBOH) Reporting and Follow-Up Responsibilities

Since the nine diseases and conditions (infectious agents) listed above and defined as "Sexually Transmitted Infections" are reported directly to MDPH DSTDP, there are no LBOH reporting and follow-up responsibilities. However, LBOH, health departments, clinicians, and laboratories can contact the DSTDP directly at (617) 983-6940 with questions or for technical assistance regarding reporting or treatment guidelines (see *http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html*).

Section 4

CONTROLLING FURTHER SPREAD

The DSTDP is charged with surveillance, investigation, and control of STIs. The DSTDP provides the services of disease intervention specialists (DIS). The DIS, with cooperation of the patient and health care provider, interview individuals with "priority diseases" (infectious syphilis, rectal/pharyngeal gonococcal infection, antimicrobial-resistant gonorrhea, pharyngeal chlamydia infection, and LGV) regarding possible source(s) of infection, and they identify and notify those who may have been exposed. These highly trained counselors/field investigators will try to locate each named contact and inform them of their exposure (discretely, and without revealing or acknowledging the source of information); impress upon them the need for evaluation and presumptive treatment for possible infection; provide information about where such services are available; and provide focused risk-reduction counseling to prevent future exposures. All priority cases are contacted and offered partner notification services. Case reports that have no treatment listed also initiate follow-up by the DIS. Providers can contact the DSTDP at (617) 983-6940 to access DIS services for assistance with any case or with questions.

MDPH supports a statewide network of integrated HIV, STD, and viral hepatitis prevention and screening services located primarily in clinical settings such as community health centers and large safety net hospitals. Services prioritize HIV testing and linkage to care in the context of integrated screening for

communicable diseases, including viral hepatitis, STIs, and access to the full array of communicable disease public health services. A subset of these sites (PICSR-T Programs) have advanced STI specimen collection and treatment of STIs for identified patient populations and the capacity to triage clients to medical and other immediate needs. A complete listing of integrated prevention and screening programs are listed under HIV Prevention and Screening Programs on pages 8-11 of the HIV/AIDS Service and Resource Guide (see *http://www.mass.gov/eohhs/docs/dph/aids/resources-guide.pdf*). Local boards of health, health departments, clinicians, and laboratories can contact the DSTDP directly at (617) 983-6940 with questions or for technical assistance regarding reporting or treatment guidelines. See *http://www.mass.gov/eohhs/gov/departments/dph/programs/id/std/public-health-cdc-std-guidelines.html* For help with interpreting syphilis serology results, clinicians can also call the DSTDP directly at (617) 983-6940.

Chlamydia infection, gonorrhea, and syphilis are the most commonly reported STIs. They are bacterial STIs. Viral STIs are much more common than bacterial STIs, but are not reportable, except for newborn herpes simples virus infection and HIV infection (see chapter on HIV/AIDS surveillance). Herpes simplex virus infection and infection with human papillomaviruses are very prevalent, but few state or local surveillance data are available for either.

Section 5

REFERENCES

Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines, 2010. MMWR 2010; 59 (No. RR-12). http://www.cdc.gov/std/treatment/2010/std-treatment-2010-rr5912.pdf

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MDPH. *Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements.* MDPH, July 2008. http://www.mass.gov/eohhs/docs/dph/cdc/reporting/rdiq-reg-summary.pdf